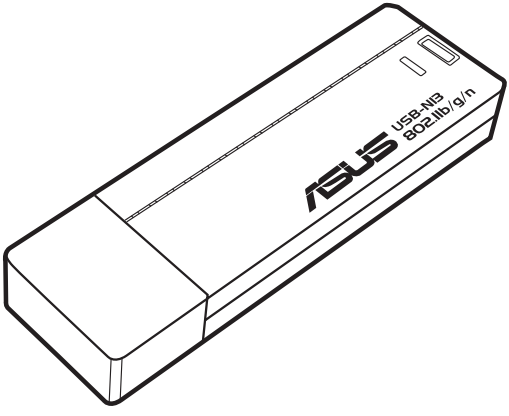
USB-N13

ASUS 802.11n Network Adapter

(For 802.11b/g/n Networks)



User Manual

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October 2009

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Introduction

Package contents

Check the following items in your ASUS Wireless LAN Adapter package.

- 1 x ASUS Wireless LAN Adapter (USB-N13)
- 1 x Support CD
- 1 x Quick Start Guide
- 1 x Warranty card

Note: Contact your retailer if any of the items is damaged or missing.

Features

- High speed networking for fast download, file transfer, and media streaming
- EZ WPS setup: Press the WPS button on the network adapter and the router to enable the WPS function.
- Multiple OS support: Windows, Linux, and MAC.

Installation

System Requirements

Before using your network adapter, your system must meet the following minimum requirements:

- Windows 2000/XP (x86/x64)/Vista (x86/x64)/7 (x86/x64)/Mac 10.3/10.4/10.5/ Linux 2.6
- USB 2.0 for personal computer or notebook computer
- 128MB system memory or larger
- 750MHz processor or higher

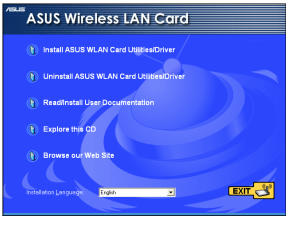
IMPORTANT!

- The ASUS wireless utility cannot run on Windows 7 and Linux.
- Install the utilities and driver from the support CD before using your network adapter.

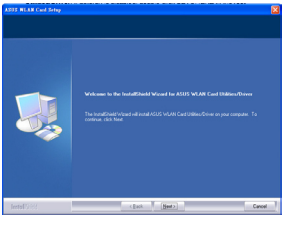
Installation Procedures

Installing the utilities and driver in Windows® XP/Vista OS

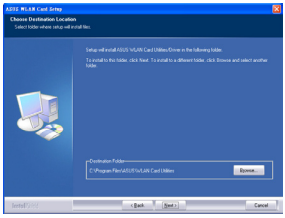
Follow these instructions to install the network adapter utilities and driver. Insert the support CD into your optical drive. If autorun is enabled in your computer, the CD automatically displays the utility menu. Click **Install ASUS WLAN Card Utilities/ Driver**. If autorun is disabled, double-click **SETUP.EXE** in the root directory of the CD.



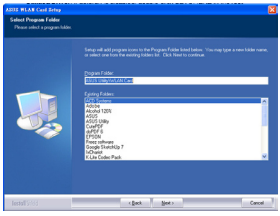
1. Select your language and click **Install ASUS WLAN Card Utilities/ Driver.**



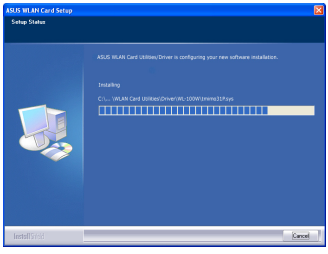
2. Click **Next** on the Welcome screen.



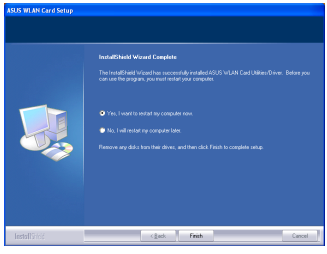
3. Click **Next** to use the default destination folder or click **Browse** to select another folder.



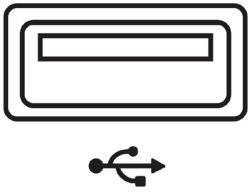
4. Click **Next.**



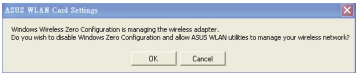
5. The installation process takes several seconds.



6. When Setup is completed, click **Finish** to exit the installation wizard and restart the computer.



7. Carefully insert the network adapter into your computer's USB slot. Windows will automatically detect and configure the network adapter using the utilities and drivers installed in the previous steps.

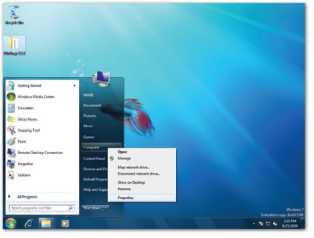


8. Click **OK** to disable Windows Zero Configuration and allow ASUS WLAN utilities to manage your wireless network.

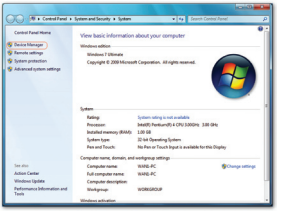
Installing the driver in Windows® 7 OS

To install the driver in Windows® 7 OS:

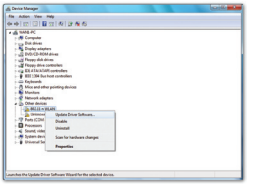
1. Insert the network adapter into your computer's USB port.
2. Place the Support CD into your computer's optical drive.
3. From the Windows® Start menu, right-click **Computer** then select **Properties**.



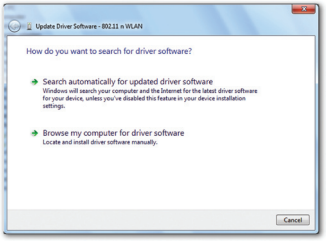
4. Click **Device Manager** at the left side of the screen.



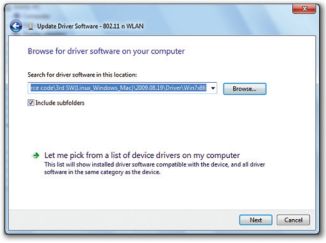
5. The Device Manager window appears. From the **Other devices** category, right-click **802.11 n WLAN** then select **Update Driver Software**.



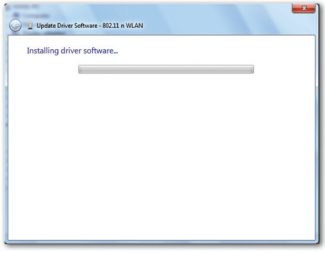
6. Select **Browse my computer for driver software**.



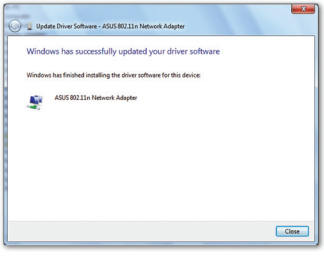
7. Click **Browse** to locate the Support CD folder, then click **Next** to start the driver installation.



You may also click **Let me pick from a list of device drivers on my computer**, then select **ASUS 802.11 n Network Adapter** and click **Next** to start the driver installation.



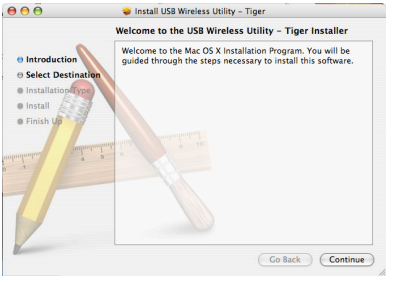
8. Windows has successfully updated your driver software. Click **Close** and restart your computer to activate the new settings.



Installing the utilities and driver in MAC OS

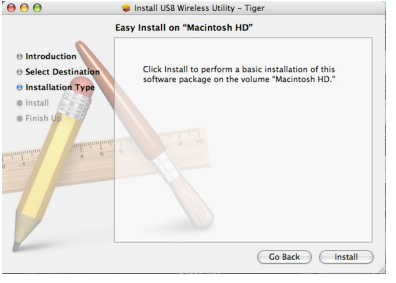
To install the utilities and driver in MAC OS:

1. Double click the installation Icon and then click **Continue**.

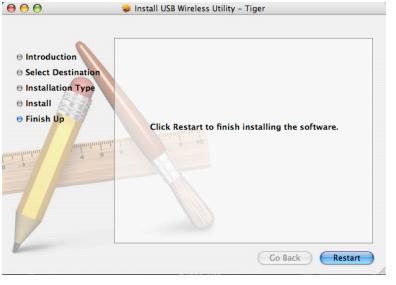


2. Select a destination volume to install the USB Wireless Utility. When done, click **Continue**.

3. Click **Install** to perform a basic installation of this software package on the volume.



4. Click **Restart** to finish installating the software.



Installing the driver in Linux OS

To install the driver in Linux OS:

- Refer to the **README** text file in the Linux zipped file included in the support CD.

Note: Obtain the Linux source code from the support CD and build the driver for the Linux OS that you are using.

The status indicators

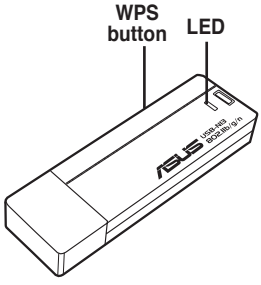
The device comes with one LED to indicate the status of the Network adapter, and one button for WiFi Protected Setup (WPS).

LED

ON: Connected to wireless device.

Blinking: Transmitting data. The blinking speed indicates the link speed.

OFF: Adapter is disabled.



Button

WPS Push Button: Enable WPS mode.

Using the WPS Wizard

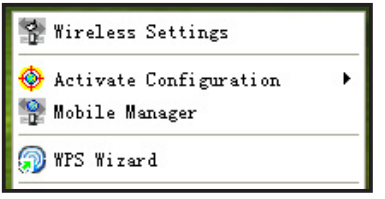
WPS Wizard is a utility that allows you to easily set up your wireless network using any of the following:

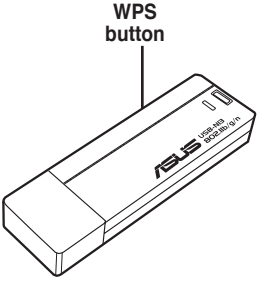
- WPS button on both the 802.11n network adapter and the router (or Access Point) that you want to connect to.
- PIN code of the WPS router or AP that you want to connect to.

Launching the WPS Wizard

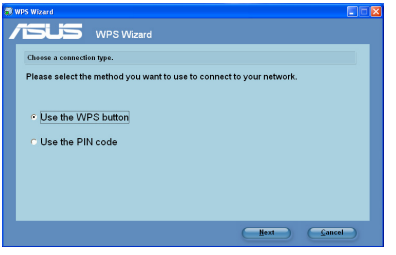
To launch the WPS Wizard:

1. Do any of the following to launch the WPS Wizard:
   - From the Windows® taskbar, right-click the WLAN icon, then select **WPS Wizard**.
   - Click **Start** > **ASUS Utility** > **WLAN Card** > **WPS Wizard** to launch the WPS Wizard.
   - Press the WPS button on your network adapter.



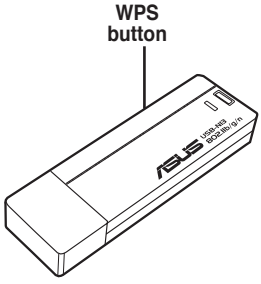


2. The WPS Wizard appears. Select the method that you want to use to connect to the network.

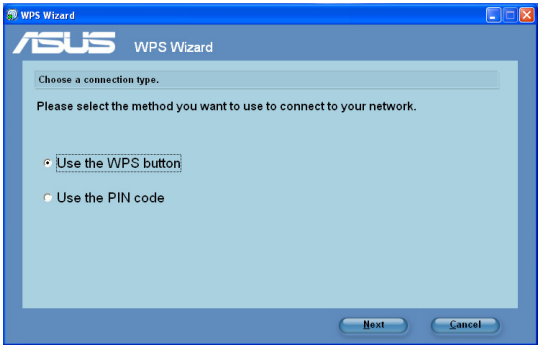


Connecting via the WPS button

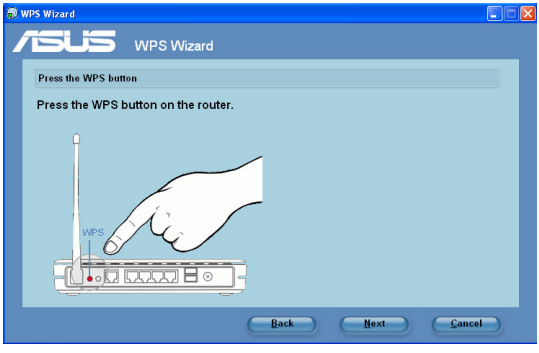
1. Press the WPS button on your network adapter to launch the WPS Wizard.



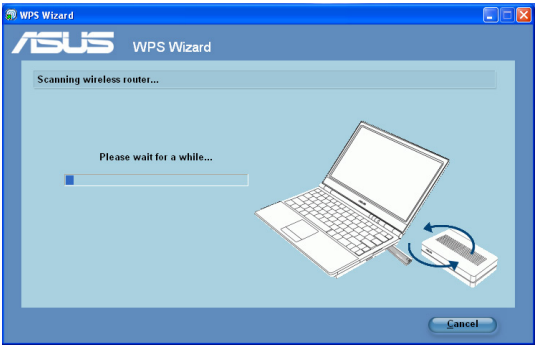
2. From the WPS Wizard, select **Use the WPS button**. Click **Next**.



3. Press the WPS button on the 802.11n network router.



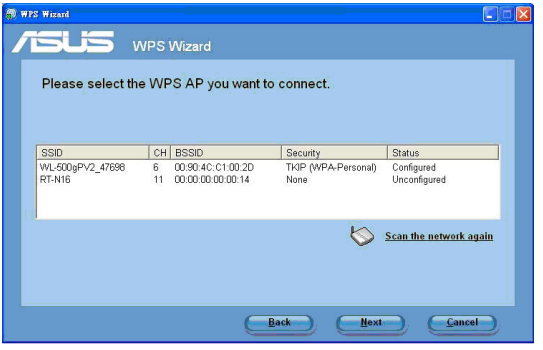
3. The 802.11n network adapter searches for the wireless router. When done, click **Next** and follow the succeeding onscreen instructions.



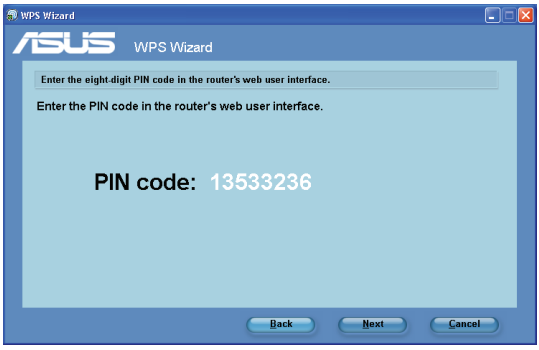
Note: If WPS configuration failed, move your computer closer to the router then try again.

Connecting via the PIN code

1. From the WPS Wizard, select **Use the PIN code**. Click **Next**.
2. Select the router that you want to connect to. The router's status is displayed as either **Configured** (with security settings) or **Unconfigured** (without security settings).



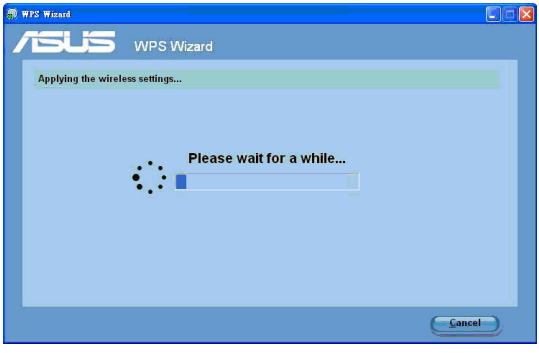
3. Click **Next**. The router's PIN code is displayed.



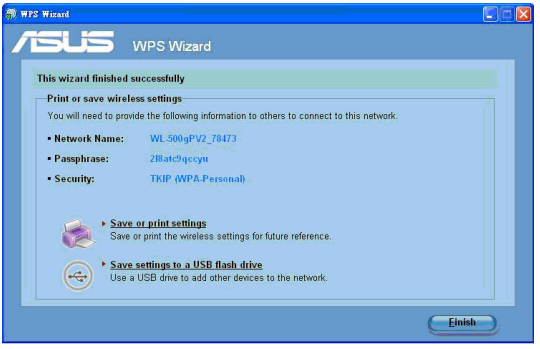
4. If your selected router's status is **Configured**, key in the PIN code in the router's web user interface.

Note: If your selected router's status is **Unconfigured**, proceed to the section **Using the PIN code on an unconfigured router**.

5. Wait until the WPS Wizard finishes applying the wireless settings.



6. WPS Wizard is completed. Click **Save or print settings** for future reference or **Save settings to a USB flash drive** to add other devices to the network. Click **Finish** to close the WPS Wizard.

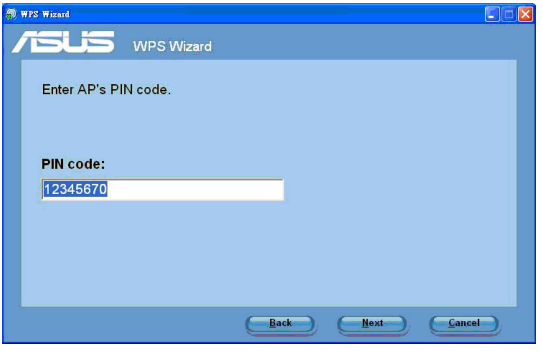


Note: For more details on adding devices to the network using a USB flash drive, refer to the section **Adding network devices using a USB flash drive**.

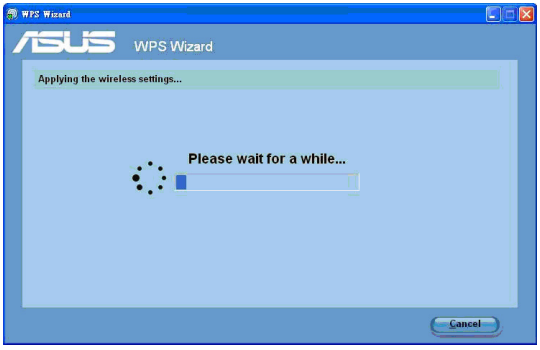
Using the PIN code on an unconfigured router

To use the PIN code on an unconfigured router:

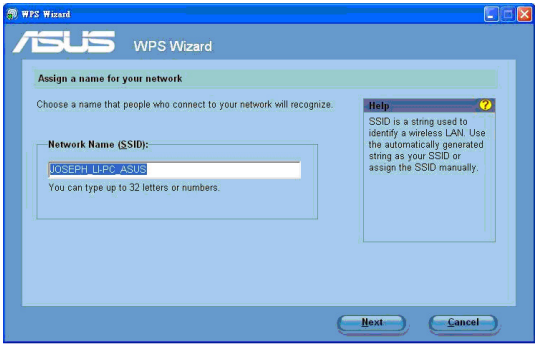
1. Follow steps 1-3 in **Connecting via the PIN code**.
2. If your selected router's status is **Unconfigured**, the WPS Wizard screen below appears. Key in the PIN code in this screen. Click **Next**.



3. Wait until the WPS Wizard finishes applying the wireless settings.

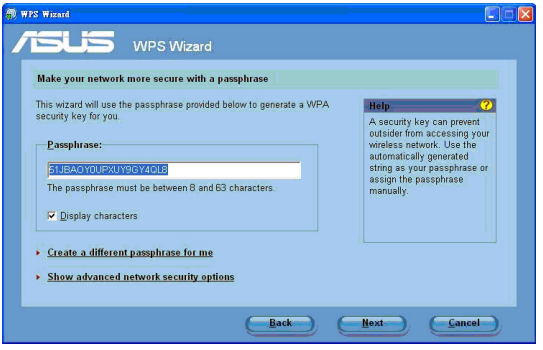


4. Assign a name to your network. When done, click **Next**.

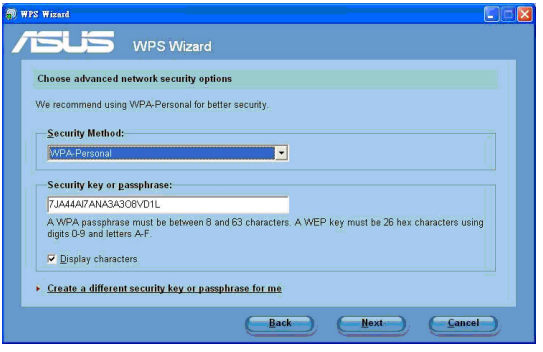


If the router is used for the first time, the WPS Wizard assigns the SSID (network name) automatically.

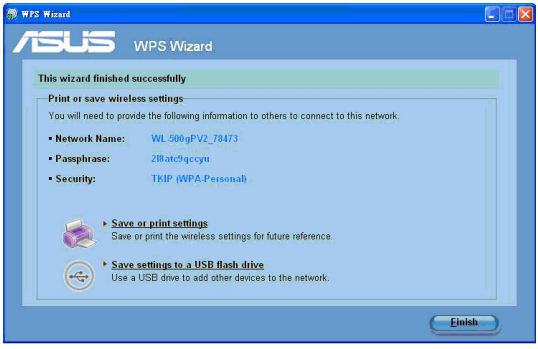
5. Use the auto-generated passphrase as your network's security key or manually assign a passphrase containing between 8 and 63 characters. When done, click **Next**.



To configure the advanced security settings, click **Show advanced network security options**. Select the **Security Method** and manually key in your **Security key or passphrase**.



6. WPS Wizard is completed. Click **Save or print settings** for future reference or **Save settings to a USB flash drive** to add other devices to the network. Click **Finish** to close the WPS Wizard.



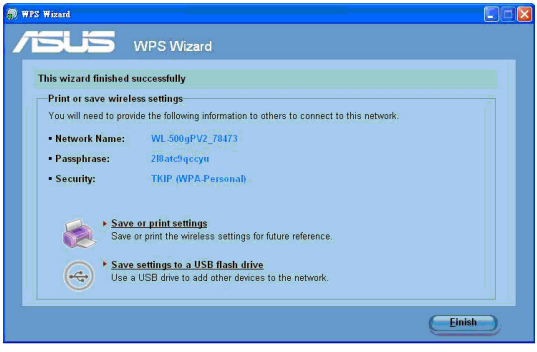
Note: For more details on adding devices to the network using a USB flash drive, refer to the section **Adding network devices using a USB flash drive**.

Adding network devices using a USB flash drive

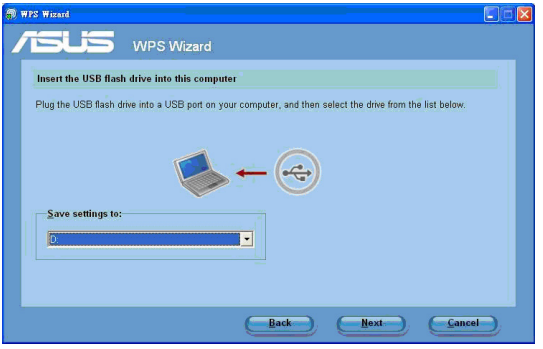
With the WPS Wizard utility, you can add devices to your network using a USB flash drive.

To add network devices using a USB flash drive:

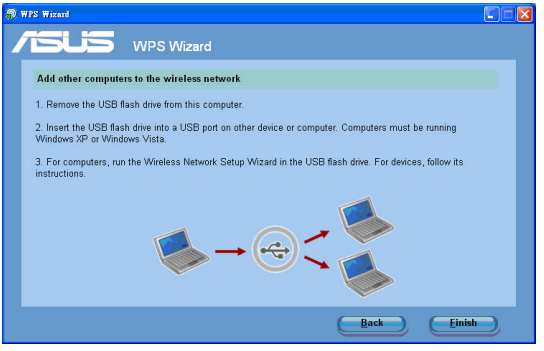
1. In the WPS Wizard, click **Save settings to a USB flash drive**.



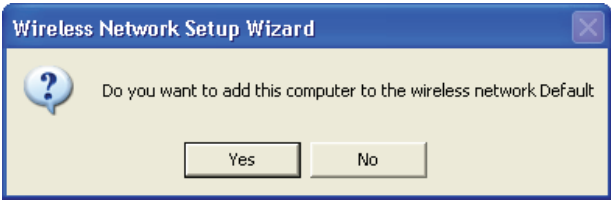
2. Plug a USB flash drive into your computer's USB port, and then select the drive from the dropdown list. Click **Next** to continue.



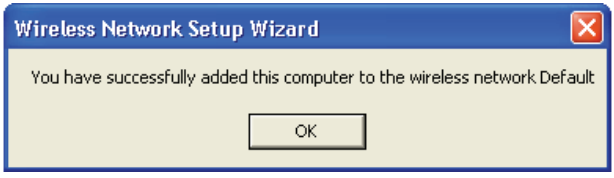
3. Remove the USB flash drive from this computer, and then plug to the computer that you want to add to the wireless network.



4. Locate the **SetupWireless.exe** from the USB drive, and double-click to run it. Click **Yes** to add the computer to the wireless network.

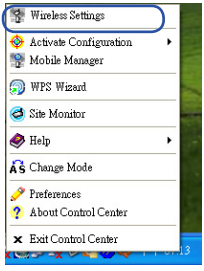


5. Click **OK** to exit the **Wireless Network Setup Wizard**.

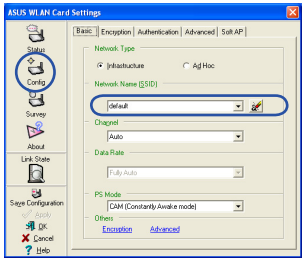


Configuring with the WLAN utility (Infrastructure)

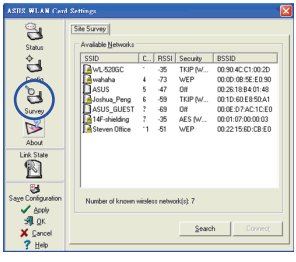
Use the ASUS WLAN utility to get connected with an existing wireless network.



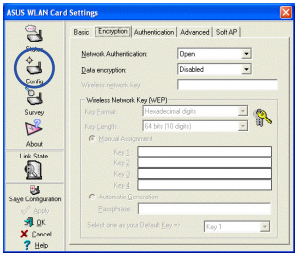
1. Right-click the wireless connection icon and select **Wireless Settings**.



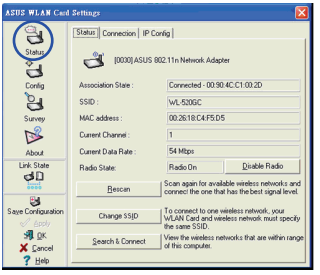
2. Click **Config** to set the SSID (network name) to that of your wireless AP.



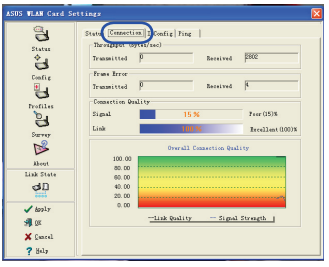
3. Use **Survey** if you do not know the SSID of your access point.



4. Encryption settings must match those at the access point. Ask your network administrator about the settings if necessary. Click **Apply** to activate the settings.



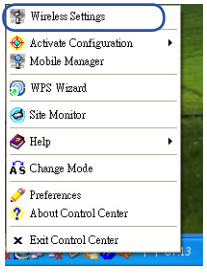
5. Click **Status** to view the association state. If connection is established, the box shows "**Connected - xx:xx:xx:xx:xx:xx**".



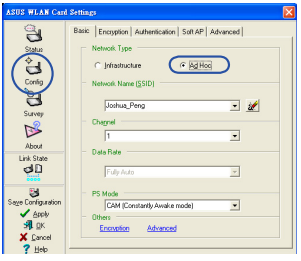
6. Click the **Connection** tab to view the signal strength. Click **OK** to exit the utility.

Configuring with the WLAN utility (Ad Hoc)

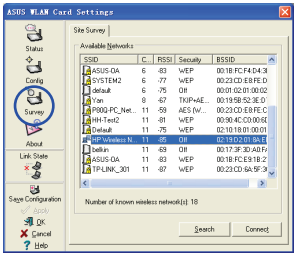
The network adapter supports Ad Hoc mode that allows communication between wireless stations without an AP.



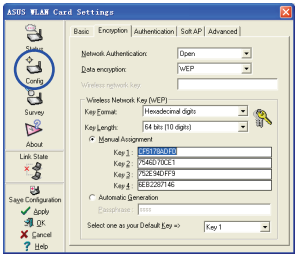
1. Right-click the wireless connection icon and select **Wireless Settings.**



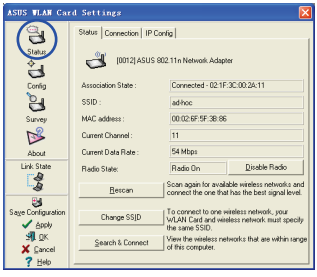
2. Click **Config** and set the network adapter to **Ad Hoc** connection mode.



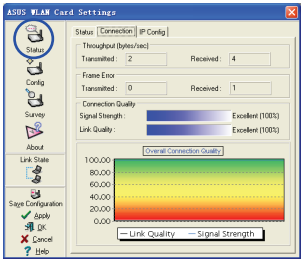
3. Click **Survey** to scan for Ad Hoc nodes. Select the node you want to communicate with and click **Connect**.



4. If the encryption settings of your network adapter are different from those of the other Ad Hoc nodes, you are prompted to make the encryption of the two nodes identical. Click **Apply** to activate the settings.

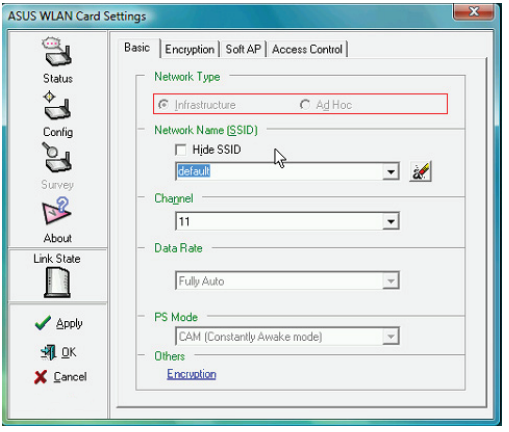


5. Click **Status** to view the association state. If connection is established, the box shows "**Connected - xx:xx:xx:xx:xx:xx**".



6. Click the **Connection** tab to view the signal strength. Click **OK** to exit the utility.

Note: You cannot configure Infrastructure or Ad-Hoc settings using the WLAN utility in Windows® Vista OS. Refer to the section **Windows Vista wireless options** for details.



Software Reference

ASUS WLAN Control Center

ASUS WLAN Control Center is an application which makes it easier to launch WLAN applications and activate network location settings. The WLAN Control Center starts automatically when the system boots up. When WLAN Control Center is running, you can see a Control Center icon on the Windows taskbar.

Launching the ASUS WLAN Control Center

To launch the ASUS WLAN Control center, do any of the following:

- Select **ASUS WLAN Control Center** from Windows Start menu.
- Double-click the **ASUS WLAN Control Center** icon on the Windows desktop.

Using the Control Center

The Control Center taskbar icon displays the following information:

- Link quality of the Network adapter (Excellent, Good, Fair, Poor, Not Linked)
- Whether the Network adapter is connected to a network (Blue: Connected, Gray: Not Connected)

Taskbar Icon and Status

Wireless Status Icons (on the taskbar)

Excellent link quality and **connected to Internet** (Infrastructure)

Good link quality and **connected to Internet** (Infrastructure)

Fair link quality and **connected to Internet** (Infrastructure)

Poor link quality and **connected to Internet** (Infrastructure)

Not linked but **connected to Internet** (Infrastructure)

Excellent link quality but **not connected to Internet** (Infrastructure)

Good link quality but **not connected to Internet** (Infrastructure)

Fair link quality but **not connected to Internet** (Infrastructure)

Poor link quality but **not connected to Internet** (Infrastructure)

Not linked and **not connected to Internet** (Infrastructure)

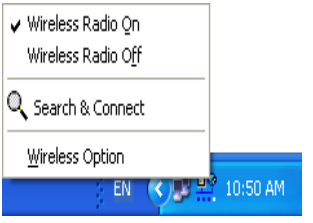
Taskbar icon - Right-click menu

Right-click the taskbar icon to show the following menu items:

- **Wireless Settings**: Click to launch Wireless Settings application.
- **Activate Configuration**: Click to choose a preset profile.
- **Mobile Manager**: Click to launch Mobile Manager application.
- **WPS Wizard**: Click to launch Wireless Protected Setup Wizard.
- **Site Monitor**: Click to launch Site Monitor application.
- **Preferences**: Click to customize the Control Center program. You can create a Control Center shortcut on the desktop and decide whether to start Control Center when the system boots up.
- **About Control Center**: Shows the version of Control Center.
- **Help**: Click to launch the help file.
- **Exit Control Center**: Click to close the Control Center program.

Taskbar icon - Left-click menu

Left-click the taskbar icon to show the following menu items:



Taskbar Left-Click Menu

- **Wireless Radio On**: Click to turn the wireless radio ON.
- **Wireless Radio Off**: Click to turn the wireless radio OFF.
- **Search & Connect**: Click to view the properties of available access points.
- **Wireless Option** (Windows® XP only): Click to choose Windows® Wireless Zero Configuration (WZC) service or ASUS utilities to configure your Network adapter.

Taskbar Icon - Launch Wireless Settings

Double-click the taskbar icon to launch the Wireless Settings utility.

ASUS Wireless Settings Utility

Wireless Settings is an application for managing the network adapter. Use Wireless Settings to view or modify the configuration settings, or to monitor the operational status of your network adapter. When Wireless Settings is launched, you can see the tabbed property sheets which categorize the configuration options into groups.

Launching Wireless Settings

To launch Wireless Settings, do any of the following:

- Click **Start > All Programs** > **ASUS Utility** > **WLAN card** > **Wireless Settings**.
- From the Windows taskbar, right-click the **Control Center icon** and select **Wireless Settings**.

NOTE: If you have more than one ASUS WLAN device installed on your computer, you may see a device selection window when you launch the "Wireless Settings" utility. Select the device you want when such situation occurs.

Status - Status

You can view the information about the Network adapter from the Status menu. The status fields are blank if the network adapter is not installed. Click **Disable Radio** to turn off the network adapter.

Association State: Displays the connection status as follows:

Connected: The adapter is now associated with one wireless LAN device. When operating in Infrastructure mode, this field shows the MAC address of the access point that the network adapter is communicating with. When operating in Ad Hoc mode, this field shows the virtual MAC address used by computers participating in the Ad Hoc network.

Scanning... : The station is trying to authenticate and associate with an access point or Ad Hoc node.

Disconnected: The Network adapter is installed to the system, but not yet connected to a wireless device.

SSID: Displays the Service Set Identifier (SSID) of the device that the adapter is either associated or intending to join.

MAC address: Shows the hardware address of the Network adapter. MAC address is a unique identifier for networking devices (typically written as twelve hexadecimal digits from 0 through 9 and A through F separated by colons, i.e. 00:E0:18:F0:05:C0).

Current Channel: Displays the radio channel to which the adapter is currently tuned. This number changes as the radio scans the available channels.

Current Data Rate: Displays the current data rate in megabits per second (Mbps).

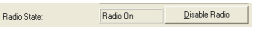
NOTE: For 802.11n performance, select 40MHz bandwidth in wireless router. Channel option depends on the bandwidth that you select.

Radio State: Shows the wireless radio status: ON or OFF.

Radio On: When the wireless radio is turned ON, the icon on the right appears in the upper left of the Status page.

Radio Off: When the wireless radio is turned OFF, the icon on the right appears in the upper left of the Status page.

Disable Radio: Click this to disable the wireless function.



Buttons

Rescan: Make the network adapter rescan all available devices. If the current link quality or signal strength is poor, rescanning can be used to push the radio off a weak access point and search for a better link with another access point. This function usually takes several seconds.

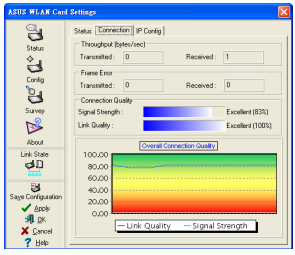
Change SSID: Click this button to set the SSID to that of the AP you want to connect to.

Search & Connect: Click this button to connect to an available wireless AP.

Activate Configuration

Auto roaming is enabled by default and makes the adapter automatically switch to APs with better signal. You can uncheck it if you want to connect to a specified AP using a particular profile.

Status - Connection



You can view the current link statistics about the network adapter. These statistics are updated once per second and are valid if the Network adapter is correctly installed.

Throughput

Transmitted: The number of frames that are transmitted.

Received: The number of frames that are received.

Frame Error

Transmitted: The number of frames that are not successfully transmitted.
Received: The number of frames that are not successfully received.

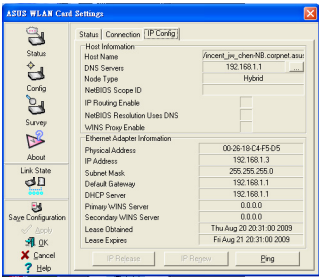
Connection Quality

Signal Strength/Link Quality: Shows the signal strength/link quality of the access point or Ad Hoc node the Network adapter is currently connected to. Ratings are: Excellent, Good, Fair, and Poor.

Overall Connection Quality

The overall connection quality is derived from the current signal strength. A graphic chart uses percentage to show signal quality.

Status - IP Config



IP Config tab shows all the current host and Network adapter information including host name, DNS servers, IP address, Subnet Mask and Default Gateway.

Button

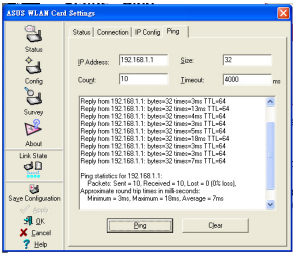
IP Release: If you want to remove the current IP address, click this button to release the IP address from DHCP server.

IP Renew: If you want to obtain a new IP address from DHCP server, click this button to renew the IP address.

Ping: Click this button to open "Ping" tab which is used to ping the devices in your network.

NOTE: The IP Release and IP Renew buttons can only be used on the network adapter that gets its IP address from the DHCP server.

Status - Ping



Click the "Ping" button in Status-IP Config tab to open this page. The Ping tab allows you to verify the accessibility of other computers or network devices.

To ping a connection:

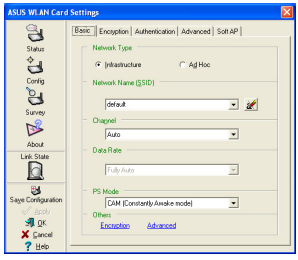
1. Key in the IP address of the device you want to verify in the IP Address field.
2. Configure the ping session by assigning the ping packet size and number of packet to send, and the timeout value (in milliseconds).
3. Click the "Ping" button.

During the ping session, the Ping button Changes into a Stop button. To cancel the ping session, click the "Stop" button.

The session field displays information on the verified connection including the roundtrip time (minimum, maximum, and average) and packets sent, received, and lost after a ping session.

Click the "Clear" button to clear the session field.

Config - Basic



This page enables you to change the Network adapter configurations.

Network Type

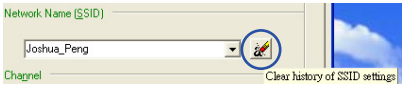
Infrastructure – Infrastructure means to establish a connection with an access point. Once connected, the access point allows you to access wireless LAN and wired LAN (Ethernet). The Channel field turns to **Auto** if the connection is based on Infrastructure.

Ad Hoc – Ad Hoc means to communicate directly with other wireless clients without using an access point. An "Ad Hoc" network can be setup quickly and easily without pre-planning, for example, sharing meeting notes between attendants in a meeting room.

Network Name (SSID)

SSID stands for "Service Set Identifier", which is a string used to identify a wireless LAN. Use the SSID to connect with a known access point. You can enter a new SSID or select one from the drop-down list box. If you get connected by designating the SSID, you are only to connect the AP with the SSID you assigned. If the AP is removed from the network, your Network adapter does not roam automatically to other APs. SSIDs must all be printable characters and having a maximum of 32 case sensitive characters, such as " Wireless".

Clear history of SSID settings



Channel

The Channel field is for setting radio channel. Your Network adapter can automatically select the correct channel to communicate with a wireless device, and the parameter is fixed to "Auto" in both Infrastructure and Ad Hoc mode.

The available radio channels depend on the regulations in your country. For the United States (FCC) and Canada (IC), channel 1 to 11 are supported. For Europe (ETSI), channel 1 to 13 are supported. For Japan (MKK), channel 1 to 14 are supported.

NOTE: Click Apply to save and activate the new configurations.

PS Mode

Constantly Awake Mode (CAM), also known as Disable Power Saving Mode, is a full powered state that yields the best performance. We recommend this mode for devices running on AC power.

Max PSP (Maximum power-saving mode), which is also known as Enable Power Saving mode, periodically wakes up the system to check if there is any data being sent. We recommend this mode for devices running on battery power.

Others

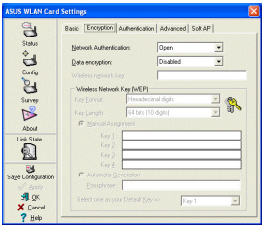
Encryption: Click this link to show the "Encryption" tab.

Advanced: Click this link to show the "Advanced" tab. In most cases, the default values do not have to be changed.

Config - Encryption

This page enables you to configure the Wireless LAN Adapter encryption settings. For data confidentiality in a wireless environment, IEEE 802.11 specifies a Wired Equivalent Privacy (WEP) algorithm to offer transmission privacy. The WEP uses keys to encrypt and decrypt data packets. The encryption process can scramble frame bits to avoid disclosure to others. The WPA-Personal/WPA2-Personal is improved security system for 802.11 which are developed to overcome the weakness of the WEP protocol.

Network Authentication



Since there is no precise bound in wireless LANs, the WLAN users need to implement certain mechanism to provide security solution. The Authentication policies in this tab provide protection of different levels such as Open, Shared, WPA-Personal, WPA2-Personal, WPA-Enterprise, and WPA2-Enterprise.

Open - Select this option to make the network operate on Open System mode, which use no authentication algorithm. Open stations and APs can authenticate with each other without checking any WEP Key, even if there is.

Shared - Select this option to make the network operate on Shared key mode. In a Share Key Authentication system, four-step exchange of frames is required to validate that the station is using the same WEP Key as the access point.

WPA-Personal/ WPA2-Personal - Select this option to enable WPA Pre-Shared Key under Infrastructure mode. It enables communication between your client and APs using WPA-Personal/WPA2-Personal encryption mode.

WPA-Enterprise/ WPA2-Enterprise - The network is operating in IEEE 802.1x authentication mode. This mode is for environments with RADIUS (Remote Access Dial-in User Service). In a RADIUS environment, three Extensible Authentication Protocol (EAP) are supported, including PEAP, EPA/TLS, and LEAP.

Data encryption

For Open and Shared authentication mode, the configuration options of encryption type are Disabled and WEP. For WPA-Personal and WPA-2 Personal authentication modes, Temporal Key Integrity Protocol (TKIP) encryption and Advanced Encryption Standard (AES) encryption are supported.

Disabled - Disable the encryption function.

WEP - WEP Key is used to encrypt your data before it is transmitted over air. You can only connect and communicate with wireless devices that use the same WEP keys.

TKIP - TKIP uses an encryption algorithm method that is more stringent than the WEP algorithm. It also uses existing WLAN calculation facilities to perform encryption. TKIP verifies the security configuration after the encryption keys are determined.

AES: AES is a symmetric 128-bit block encryption technique that works simultaneously on multiple network layers.

Wireless network key

This option is enabled only if you select WPA-Personal or WPA2-Personal authentication mode. Select “TKIP” or “AES” in the encryption filed as encryption mode to begin the encryption proceed. Note: 8 to 64 characters are required in this field.

Wireless Network Key (WEP)

This option is configurable only if you enable WEP in Network Authentication field. The WEP Key is a 64 bits (5 byte) or 128 bits (13 byte) Hexadecimal digits which is used to encrypt and decrypt data packets.

Key Format

You can select to enter Hexadecimal digits (0~9, a~f, and A~F) or ASCII characters to setup keys by defining the Key Format.

Key Length

For 64 bits encryption, each key contains 10 hex digits or 5 ASCII characters. For 128 bits encryption, each key contains 26 hex digits or 13 ASCII characters.

Manual assign WEP keys - When you select this option, the cursor appears in the field for Key 1. For 64-bit encryption, you are required to enter four WEP Keys. Each Key contains exactly 10 hex digits (0~9, a~f, and A~F). For 128-bit encryption, you are required to enter four WEP Keys. Each Key contains exactly 26 hex digits (0~9, a~f, and A~F).

Select one as your Default Key

The Default Key field allows you specify which of the four encryption keys is to use for transmitting data over wireless LAN. You can change the default key by clicking on the downward arrow, selecting the number of the key you want to use, and clicking the "Apply" button. If the access point or station with which you are communicating uses the identical key by the same sequence, you can use any of the keys as the default on your Network adapter.

Click the "Apply" button after you have created the encryption keys, the Wireless Settings Utility uses asterisks to mask your keys.

64/128bits versus 40/104bits

There are two levels of WEP Encryption: 64 bits and 128 bits.

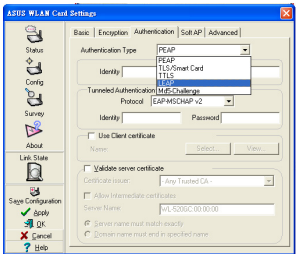
Firstly, 64 bit WEP and 40 bit WEP are the same encryption method and can interoperate in the wireless network. This lower level of WEP encryption uses a 40 bit (10 Hex character) as a "secret key" (set by user), and a 24 bit "Initialization Vector" (not under user control). This together makes 64 bits (40 + 24). Some vendors refer to this level of WEP as 40 bits and others refer to this as 64 bits. Our Wireless LAN products use the term 64 bits when referring to this lower level of encryption.

Secondly, 104 bit WEP and 128 bit WEP are the same encryption method and can interoperate in the wireless network. This higher level of WEP encryption uses a 104 bit (26 Hex character) as a "secret key" (set by user), and a 24 bit "Initialization Vector" (not under user control). This together makes 128 bits (104 + 24). Some vendors refer to this level of WEP as 104 bits and others refer to this as 128 bits. Our Wireless LAN products use the term 128 bits when referring to this higher level of encryption.

Config - Authentication

This tab allows you to set the security settings to match those of your AP. It is configurable only if you have set Network Authentication to WPA or WPA2 in Config-Encryption tab.

Authentication Type



The authentication type methods include:

PEAP: PEAP (Protected Extensible Authentication Protocol) authentication is a version of Extensible Authentication Protocol (EAP). EAP ensures mutual authentication between a wireless client and a server that resides at the network operations center.

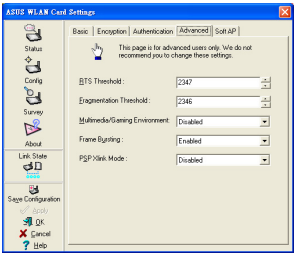
TLS/Smart Card: TLS (Transport Layer Security) authentication is used to create an encrypted tunnel and achieve server-side authentication in a manner similar to Web server authentication using Secure Sockets Layer (SSL) protocol. This method uses digital certificates to verify the identity of a client and server.

TTLS: TTLS authentication uses certificates to authenticate the server, while maintaining similar security properties to TLS such as mutual authentication and a shared confidentiality for session WEP key.

LEAP: LEAP (Light Extensible Authentication Protocol) authentication is a version of Extensible Authentication Protocol (EAP). EAP ensures mutual authentication between a wireless client and a server that resides at the network operations center.

Md5-challenge: Md5-challenge is a one-way encryption algorithm that uses usernames and passwords. This method does not support key management, but require a preset key.

Config - Advanced



Click **Advanced** link on Config-Basic page to show this tab. This tab allows you to set up additional parameters for the wireless Adapter. We recommend using the default values for all items in this window.

RTS Threshold (0-2347)

The RTS/CTS (Request to Send/Clear to Send) function is used to minimize collisions among wireless stations. When RTS/CTS is enabled, the router refrains from sending a data frame until another RTS/CTS handshake is completed. Enable RTS/CTS by setting a specific packet size threshold. The default value (2347) is recommended.

Fragmentation Threshold (256-2346)

Fragmentation is used to divide 802.11 frames into smaller pieces (fragments) that are sent separately to the destination. Enable fragmentation by setting a specific packet size threshold. If there is an excessive number of collisions on the WLAN, experiment with different fragmentation values to increase the reliability of frame transmissions. The default value (2346) is recommended for normal use.

Multimedia / Gaming Environment

Multimedia / Gaming Environment can ignore the scanning command coming from Windows every 60 seconds. Enable this setting, the scanning command will not disturb the normal operation of packets transferring for better game play performance.

Frame Bursting

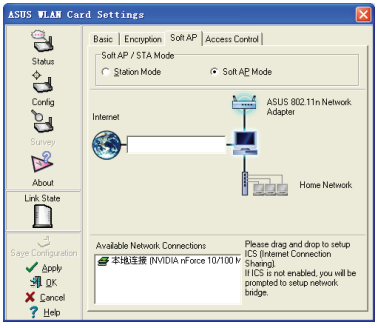
Frame Bursting technology improves wireless network efficiency and boosts throughput.

PSP Xlink Mode

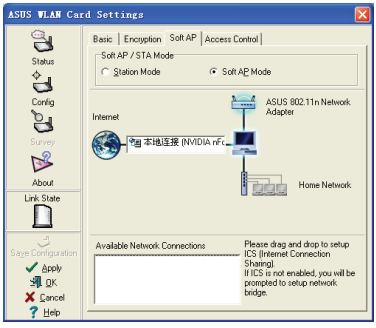
Disable or enable an infrastructure tunneling program which allows you to play ad-hoc PSP multiplayer games on the Internet (like virtual infrastructure mode).

Soft AP (Windows XP/Vista)

Soft AP mode allows the Wireless LAN card to act as a virtual access point. The computer needs to be connected to a wired network using an Ethernet connection in order to provide network access to Wireless LAN clients.



1. Select **Soft AP Mode**.



2. Drag and drop a wired network connection next to the globe icon.

3. Right-click the taskbar icon and select **A-S Change Mode** to easily switch between Soft AP and Station modes.

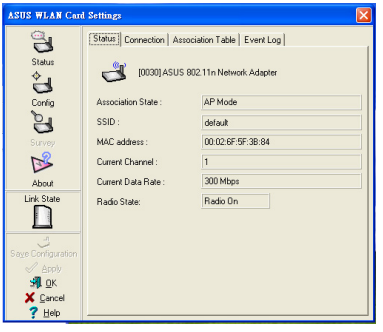
Soft AP (Windows XP/Vista) Cont.

Soft AP mode allows you to configure Access Control settings.

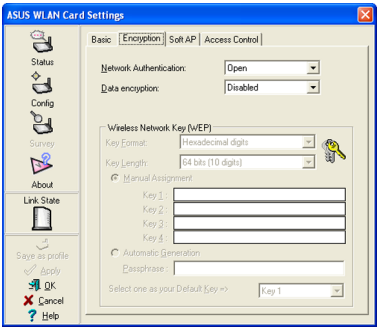
Access Control

The AP provides facilities to limit the wireless clients that associate with it and the data packets that can forward through it. Filters provide network security or improve performance by eliminating broadcast/multicast packets from the radio network.

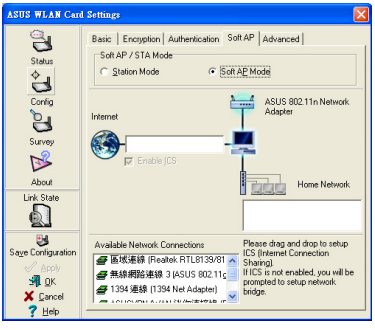
The Access Control List (ACL) contains MAC addresses for wireless clients allowed to associate with the AP. This provides security by preventing unauthorized access. The AP also uses a disallowed address list of destinations. This feature prevents the AP from communicating with specified destinations. This can include network devices that do not require communication with the AP or its wireless clients.



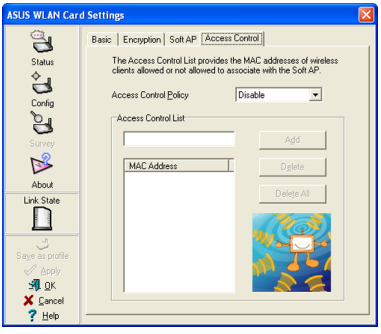
Status Page



Encryption Page

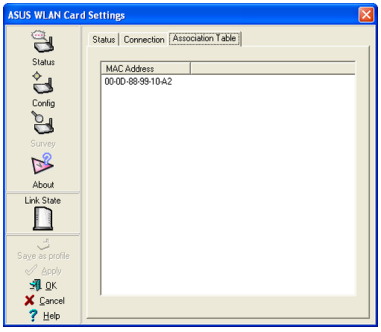


Clicking **Apply** after configuring Soft AP will show the “Access Control” tab.

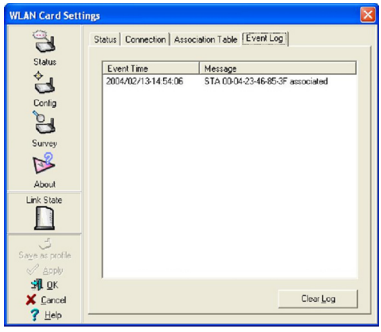


Enter a MAC Address on the Access Control page and select “Accept” or “Reject” or “Disable” from the pull-down menu.

Soft AP (Windows XP/Vista) Cont.



Soft AP Mode will also provide two extra tabs on the Status pages - Association Table and Event Log. The Association Table shows clients that are currently connected to the Soft AP.



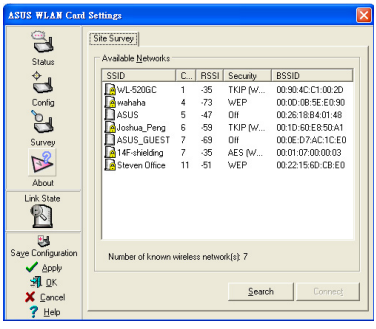
The Event Log tracks messages associated with the Soft AP.

IMPORTANT: If the end points of a chain are connected to each other a loop is created. Normally it is advised to avoid loops involving bridges as it can lead to performance breakdowns, and broadcast and multicast storms.

Survey - Site Survey

Use the Site Survey tab to view statistics on the wireless networks available to the Network adapter and their parameters.

- **SSID**: The SSID of the available networks.
- **Channel**: The channel used by each network.



- **RSSI:** The Received Signal Strength Indication (RSSI) transmitted by each network. This information is helpful in determining which network to connect to. The value is then normalized to a dBm value.
- **Security:** Wireless network encryption information. All devices in the network should use the same encryption method to ensure the communication.
- **BSSID:** The media access control (MAC) address of the access point or the Basic Service Set ID of the Ad Hoc node.

NOTE: Some access points may disable SSID broadcast and hide themselves from "Site Survey" or "Site Monitor", however, you can connect such AP if you know their SSID.

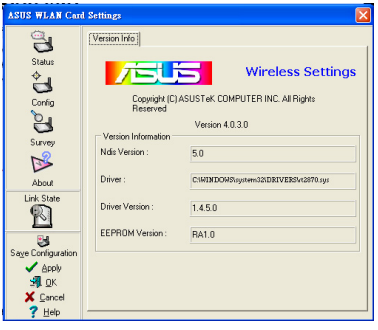
Buttons

Search – To scan all available wireless networks and show the scan result in the "Available Network" list.

Connect – To associate with a network, select the network from the "Available Network" list and click this button.

About - Version Info

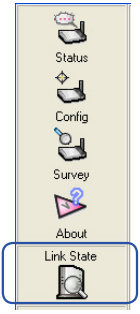
Use the Version Info tab to view program and Network adapter version information. The program version information field includes the Copyright and utility version. The version information includes the NDIS version, driver name, driver version and hardware version.



NOTE: The screen shown above is for reference only.

Link State

Network adapter “Link State” icon appears on the left side of the Network adapter Settings. Use the icon to view the current signal status.

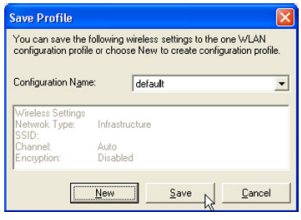


- Excellent link quality (Infrastructure)
- Good link quality (Infrastructure)
- Fair link quality (Infrastructure)
- Poor link quality (Infrastructure)
- Not linked (Infrastructure)
- Linked (Ad-Hoc)
- Not linked (Ad-Hoc)
- Scanning

Save Configuration

Click **Save Configuration** to save the changes you made to your wireless settings. You may choose to save the changes in the wireless settings to the current profile or to a new profile.

IMPORTANT!
Click **Apply** to apply the new settings, then click **Save Configuration** to save the new settings to the current profile or to a new profile.



Apply - Click to apply the changes made on the Wireless Settings utility.

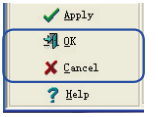
OK - Click to close the Wireless Setting utility window.

Cancel - Click to cancel any changes made on the Wireless Settings utility. Click to close the Wireless Settings utility window.

Help - Click to display the help menu.

Exit Wireless Settings

To exit Wireless Settings, you can click **OK** or **Cancel**.



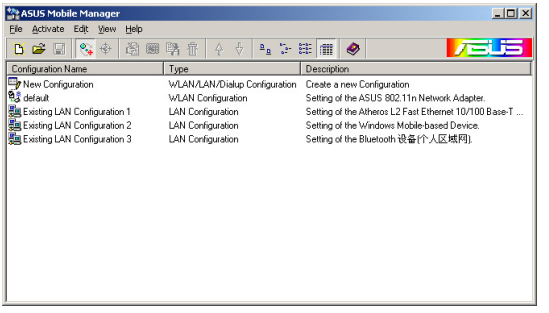
ASUS Mobile Manager

The Mobile Manager is a convenient tool to set up and manage network location settings. In different places, you have to reconfigure settings for conforming to the connectivity needs of the place.

Mobile Manager lets users configure multiple alternative configurations for different locations. You just need to set once, and then easily activate a configuration with a push of a button when you change location. Mobile Manager would determine whether or not the new settings would require rebooting Windows for the changes to take effect.

To launch the Mobile Manager utility:

1. Click **Start** > **All Programs** > **ASUS Utility** > **WLAN Card** > **Mobile Manager**, or right-click the **Control Center** icon on the Windows® taskbar, then select **Mobile Manager.**
2. The Mobile Manager main window appears.



File menu

New Configuration : Select this option to launch the New Configuration Wizard. See the next section for details.

Import Configuration : Select this option to load a configuration from an INI File.

Export Configuration : Save the selected configuration (containing Wireless Settings, TCP/IP Settings, Network Settings, etc.) to an INI file. The INI file may be saved on a floppy disk, and may be imported by other computers with the Mobile Manager utility. You may also use this file as backup.

Exit : Select to close the Mobile Manager utility.

Activate menu

Auto Roaming : Activating this option allows the ASUS network adapter to switch to another association you have specified when changes to an existing association occurred. If no associations are made, Auto Roaming automatically connects to a wireless network based on your specified configurations.

Activate Configuration : Applies the configuration you selected from the list. Follow the screens instructions to activate a configuration.

NOTE: You need to restart the system to activate the configuration settings under Windows® 98/ME operating system. You do not need to restart the system to activate the configuration settings in Windows® 2000/XP operating system.

Edit menu

Edit Configuration : The Edit Configuration option allows you to edit selected configuration items. See the "Editing a Configuration" section on page 3-19 for details.

Rename : Changes the name of the selected configuration.

Duplicate : Duplicates the selected configuration.

Delete : Discards the selected configuration.

Up : Raises the position of a selected wireless network configuration in the preferred network list.

Down : Lowers the position of the selected wireless network configuration in the preferred network list.

Note: Edit menu commands appear when you right-click a configuration in the Mobile Manager window.

View menu

Large Icons : Displays large icons for each configuration.

Small Icons : Displays small icons for each configuration.

List : Shows a list of available configurations.

Details : Displays the name, type, and description of a selected configuration.

Help menu

Help contents : Displays the Mobile Manager help window.

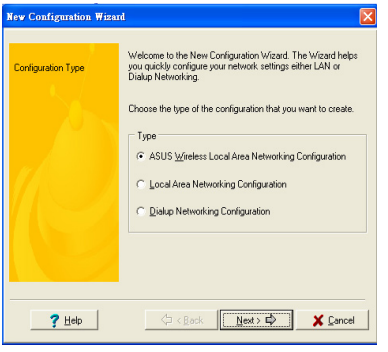
About Mobile Manager : Displays the Mobile Manager version number and copyright information. Click the ASUS logo to launch the ASUS website.

Creating a new configuration

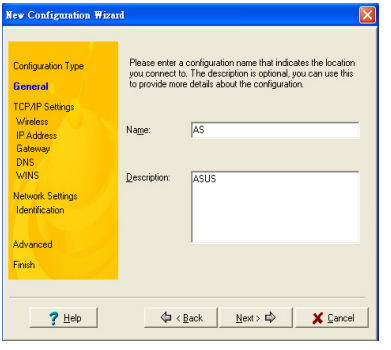
To create a new configuration:

1. To launch the New Configuration Wizard, click **File** > **New Configuration** or double-click the **New Configuration** icon on the Mobile Manager toolbar. The New Configuration Wizard dialog box appears.
2. Select any of the configuration types below. Click **Next** when done.

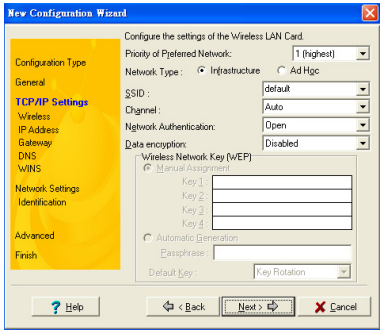
- **ASUS Wireless Local Area Network Configuration.** Select this option if you have an installed ASUS USB Wireless LAN Adapter in your computer.
- **Wired Local Area Network Configuration.** Select this if your computer has an installed network interface card other than ASUS USB Wireless LAN Adapter.
- **Dialup Networking Configuration.** Select this option if your computer has an installed modem.



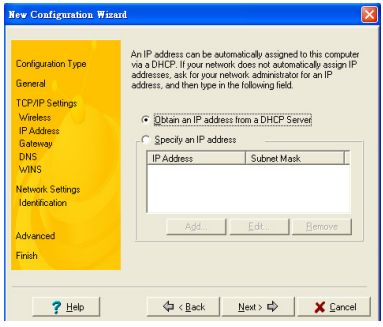
3. Key in the name and description of the configuration you wish to create, then click **Next**.



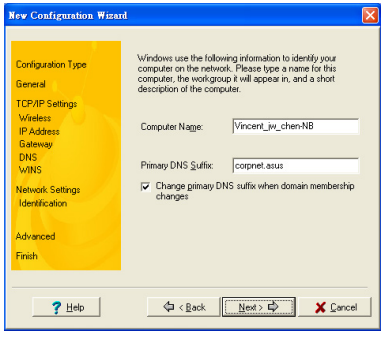
4. Configure the wireless settings including the network type, SSID, channel and WEP encryption. Click **Next** when done.



5. Set the IP address of the configuration type. Specify the IP address using the DHCP server (automatic) or assign it manually. The wizard auto-detects and displays the current system settings. Click **Next** when done.



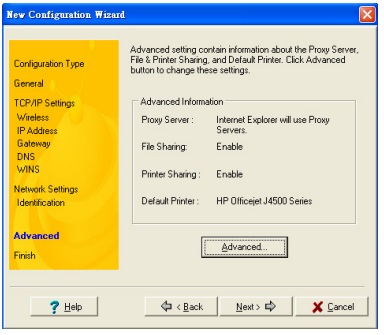
6. Key in the computer name, then click **Next**.



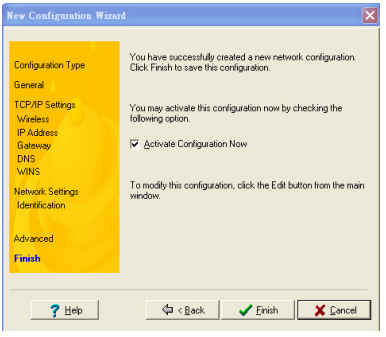
7. Set up the proxy server and printer sharing settings.

   Click **Advanced** to display the proxy server and printer sharing options.

   Click **Next** when finished.



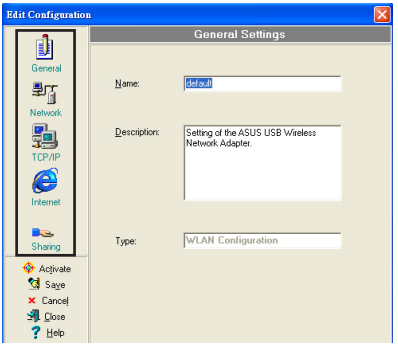
8. Tick the **Activate Configuration Now** option to activate the new configuration settings. The Mobile Manager window displays the created configuration when it is not activated. Click **Finish** to close the wizard.



Editing a configuration

To edit a configuration:

1. Select a configuration from the Mobile Manager window.
2. Click **Edit** from the menu bar, then select **Edit Configuration**. The **Edit Configuration** dialog box appears. Click the buttons on the left to navigate the window.



General settings

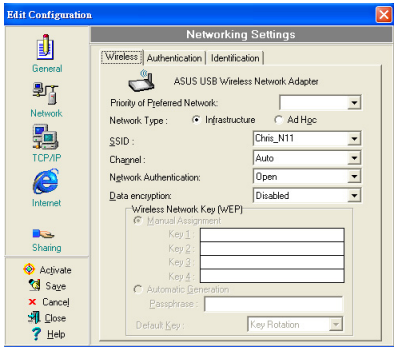
Name: The configuration name indicates the location from where you are dialing or connecting to a network. For example, name your configuration “Work-Meeting Room” if you are using this connection at your workplace meeting room.

Description: Key in additional details of the configuration in this field. This field is optional.

Network settings -Wireless tab

Priority of Preferred Network: This field allows you to select the priority of the preferred network.

Network Type



Infrastructure: Select the Infrastructure mode to establish connection to an access point.

Ad-hoc: Select the Ad-hoc mode to communicate directly with other Wireless LAN devices without using an access point.

SSID: SSID stands for Service Set Identifier, a string used to identify a wireless LAN. You can only connect with an Access Point that has the same SSID. Use different SSIDs to segment the wireless LAN and add security.

Channel: The Channel field allows you to select the radio channel for the network adapter. In an Infrastructure network, your network adapter automatically selects the correct frequency channel required to communicate with an Access Point.

WEP: This option allows you to disable or enable (64-bit or 128-bit) WEP encryption. The WEP Key is a 64-bit (5 byte) or 128-bit (13 byte) hexadecimal digit use to encrypt transmitted data packets and decrypt received data packets.

Network settings -Identification tab

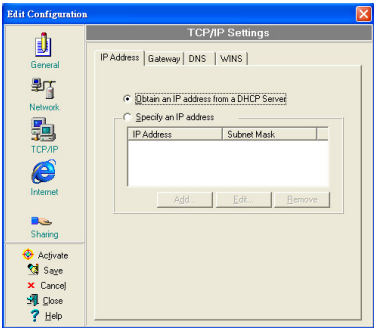
Computer name: Assign a unique name of up to 15 characters for your computer. The computer name allows other users in a network to recognize your computer. The computer name is generally the same with the DNS hostname.

NOTE: Avoid using spaces or symbols in your computer name.

TCP/IP settings-Device tab

Select the network adapter you want to use for this configuration.

NOTE: This item appears only when you are editing a wired LAN configuration.



TCP/IP settings-IP Address tab

Obtain an IP address from a DHCP server: The Dynamic Host Configuration Protocol (DHCP) server assigns IP addresses automatically within a specified range of devices.

Specify an IP address: Ask your network administrator for the IP address and subnet mask you should use. Key in the IP Address and Subnet Mask manually.

TCP/IP settings-Gateway tab

Specify the gateways. You may specify more than one gateway. Set up the primary gateway first.

Add: Click this button to add a new TCP/IP gateway address. The added gateway appears in the **Default gateways** list. Repeat the process to add another gateway. The value in each gateway field must be between 0 and 255. You can have up to eight IP addresses for gateways.

Edit: Click this button to edit a selected gateway address.

Remove: Click this button to delete a selected gateway address.

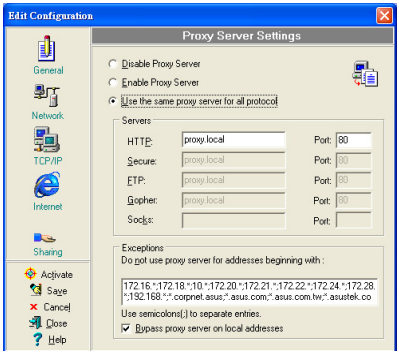
TCP/IP settings-DNS tab

The DNS tab allows you to configure the DNS settings of the selected configuration. This tab also allows you to add a DNS server and arrange them in order of their use. You may also assign a DNS suffix for a specified DNS server.

TCP/IP settings-WINS tab

The WINS tab allows you to configure the WINS settings of the selected configuration. This tab allows you to add WINS addresses and arrange them in order of their use. This tab also allows you to enable or import LMHOST lookup and adjust the NetBIOS settings.

Internet settings



A proxy server acts as a security barrier between your internal network (Intranet) and the Internet. A proxy server restricts other people on the Internet from gaining access to confidential information on your internal network or your computer.

Disable Proxy Server: Allows you to disable the proxy server.

Enable Proxy Server: Use the Proxy server to access the Internet.

Use the same proxy server for all protocols: Specifies whether you want to use the same proxy server to gain access to the Internet using all protocols.

Servers field: Provides fields for you to type the address and port number of the proxy server you want to use to gain access to the Internet over HTTP, Secure, FTP, Gopher, and Socks protocol.

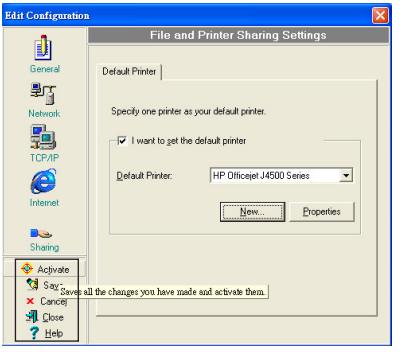
Exceptions field

Do not use proxy server for address beginning with: Key in the Web addresses that do not need to be accessed through the proxy server. If you want to connect to a computer on your Intranet, make sure you type its address in this box. You may use wild cards to match domain and host names or addresses, for example, “*.company.com”, “192.72.111.*”.

Bypass proxy server for local addresses: This option allows you to use the proxy server for all local (Intranet) addresses.

NOTE: You may gain access to local addresses easier and faster if you do not use the proxy server.

Sharing settings



I want to set the default printer: Allows you to select the default printer for printer sharing.

Default printer: Allows you to select the default printer from a list of installed printers.

Click **New** to add a new printer using the Windows® Add Printer Wizard.

Click **Properties** to display the properties of a selected printer.

Command buttons

Use these buttons to activate, save, or cancel changes made in the configuration. Click **Close** to close the Edit Configuration window. Click **Help** to view the help files.

Site Monitor

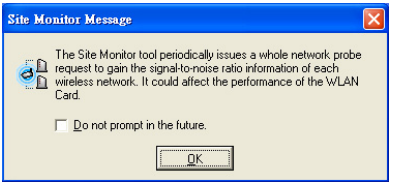
The Site Monitor utility measures the signal-to-noise (SNR) values of all available wireless networks. Use this utility to determine the best placement of access points in a wireless network.

Launching Site Monitor

To launch the Site Monitor:

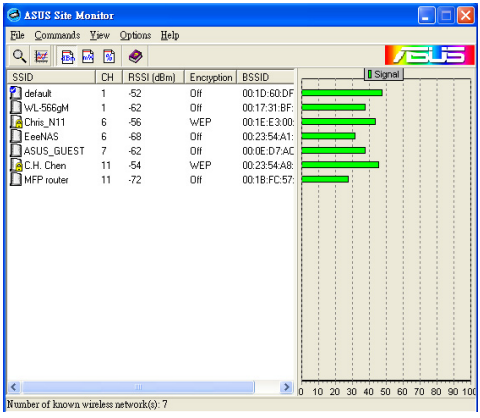
- Click the Windows® **Start** button, then select **Programs** > **ASUS Utility** > **WLAN Card** > **Site Monitor**.
- Right-click the **Control Center** icon on the Windows taskbar, then select **Site Monitor**.

  The Site Monitor survey message appears. Click **OK**.



Site Monitor main window

The Site Monitor main window displays the available wireless connections and the signal-to-noise (SNR) value of a selected connection.

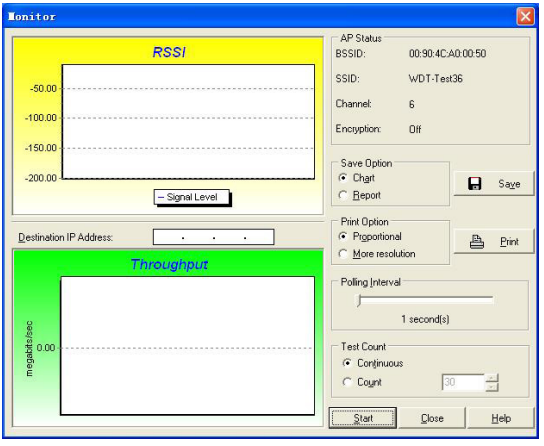


NOTE: Some Access Points disable their SSID broadcasting to hide themselves from “Site Survey” or “Site Monitor”. You may join these APs if you know their SSID.

Monitoring a connection

To monitor a connection:

1. Select the connection from the list.
2. Click Command from the menu bar, then select monitor. You may also press <**Ctrl**> + <**M**> in your keyboard. The Monitor window appears.



The following connection parameters are displayed in graphical representation.

SNR. This indicates the quality of communications within the current network. The communication quality is based on signal level and noise level measurements. The higher the SNR, the better the connection quality.

Communication Quality. This indicates the communication quality of the Basic Service Set that the station is connected to.

Signal Level. This line specifies the average signal level of the Basic Service Set that the station is connected to.

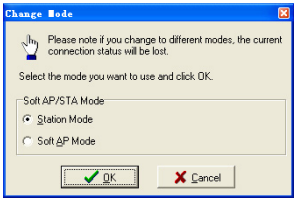
Noise Level. Specifies the average noise level of the Frequency Channel currently used for connection.

Throughput. The Throughput graph sends a specified number of data packets to the remote host and calculates the average transmission rate in megabytes per second.

During the test, you can toggle between the **Start** and **Stop** buttons. Click **Start** to begin the link test. Click **Stop** at any time to stop the test.

A-S (AP mode <--> Station mode)

Select the mode you want to use. When done, click **OK**.



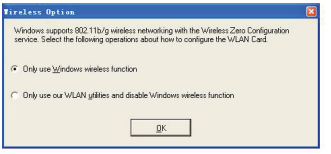
If you change to a different mode, the current connection status will be lost.

Windows® XP wireless options

The wireless options window shown below is only available for Windows® XP. It appears when you run the Control Center utility for the first time. Select the utility you want to use for configuring your Network adapter.

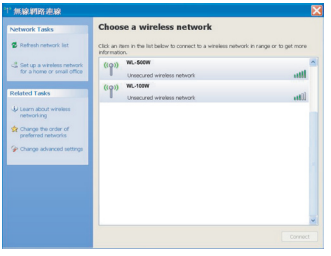
Only use Windows wireless function – Only use Windows® XP Wireless Zero Configuration service to configure the Network adapter.

Only use our WLAN utilities and disable Windows wireless function
– Only use ASUS WLAN utilities to configure the Network adapter.

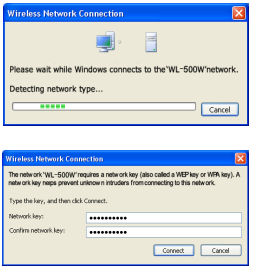


Configuring with Windows® Wireless Zero Configuration service

If you want to configure your Network adapter via Windows® Wireless Zero Configuration (WZC) service, follow the instruction below to make the settings.

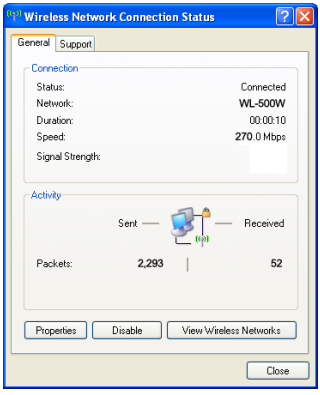


1. Double-click the wireless network icon on the Windows taskbar to view available networks.Select the AP and click **Connect**.

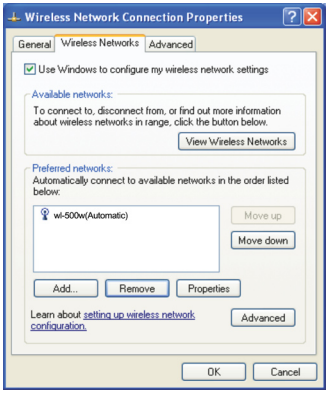


2. If you have set up encryption on your wireless router, key in the encryption keys and click **Connect**. The connection is complete.

To set up the wireless connection properties, right-click the wireless icon on the taskbar and select **Open Network Connection**. Then right-click the network connection icon and select **Property** to open the Wireless Network Connection Status page.



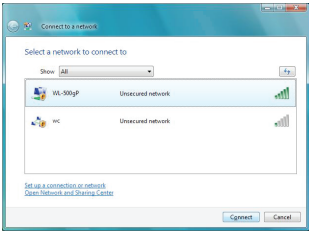
1. The **General** page shows status, duration, speed, and signal strength. The green bars represent signal strength, with five bars indicating excellent signal and one bar indicating poor signal.



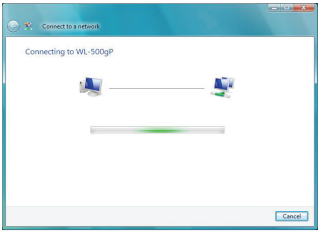
2. Select “Wireless Networks” tab to show **Preferred networks**. Use the **Add** button to add the “SSID” of available networks and set the connection preference order with the **Move up** and **Move down** buttons. The radio tower with a signal icon identifies the currently connected access point. Click **Properties** to set the authentication of the wireless connection.

Windows® Vista wireless options

If you want to configure your Network adapter via Windows® Wireless Client service, follow the instruction below to make the settings.



1. Right-click the network icon on the Windows taskbar. Select **Connect to a network** to view the available networks. Select the AP and click **Connect**.

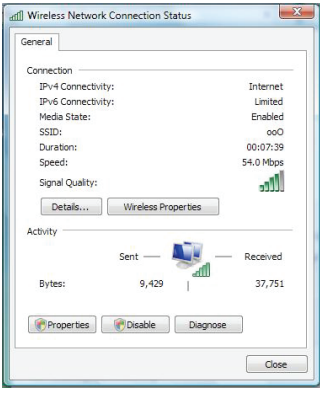


2. If you have set up encryption on your wireless router, key in the encryption keys and click **Connect**. The connection is complete.

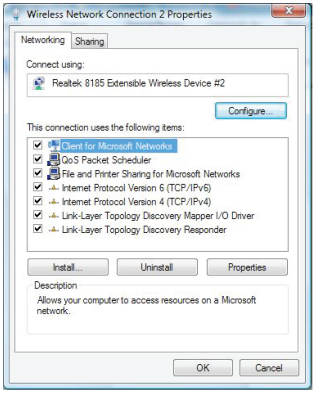
To set up the wireless connection properties:

1. Right-click the network icon on the Windows taskbar and select **Network and sharing Center**.
2. Select **Manage network connections**.
3. Double-click the wireless network connection icon to open the Wireless Network Connection Status page.
4. Click **Properties** to open the Property page from the Wireless Network Connection Status page.

The General page shows status,SSID, duration, speed, and signal strength. The green bars represent signal strength, with five bars indicating excellent signal and one bar indicating poor signal.



Click **Properties** from the Property page to set the authentication of the wireless connection.

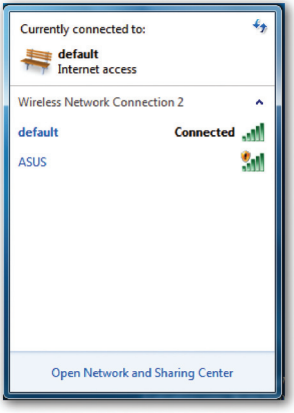


Windows® 7 wireless options

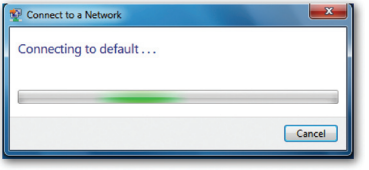
Windows® 7 allows you to connect to a wireless network using the WPS function.

1. Right-click the network icon in the notification area, then select **Open Network and Sharing Center**. Click **Connect to a network**, select the AP and click **Connect**.

The picture below indicates that you have successfully connected to the wireless network.



2. Key in the security key, then click **OK**. You may also press the WPS button on the access point and the network adapter to establish the WiFi connection.

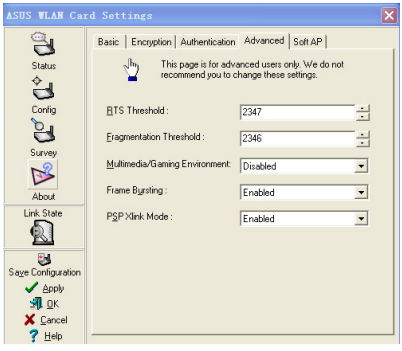


Application

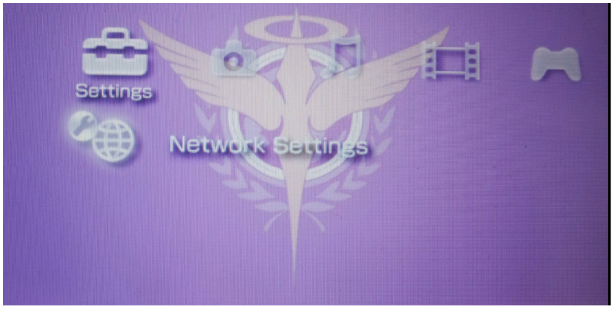
Setting up the XLink Mode under Windows® XP

To set up the XLink Mode under Windows® XP:

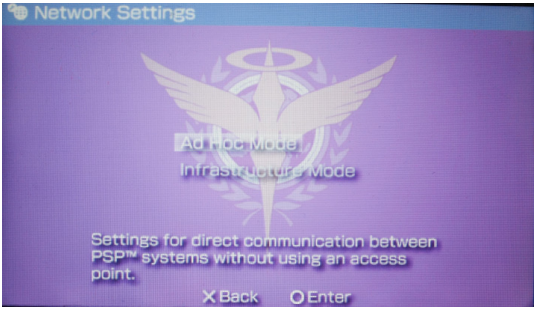
1. Click **ASUS WLAN Control Center** > **Config** > **Advanced** to enable the PSP Xlink Mode.



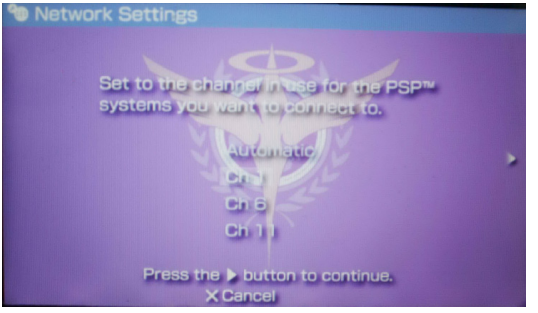
2. Turn on your PSP to set up the configuration.
3. Select **Network Settings**.



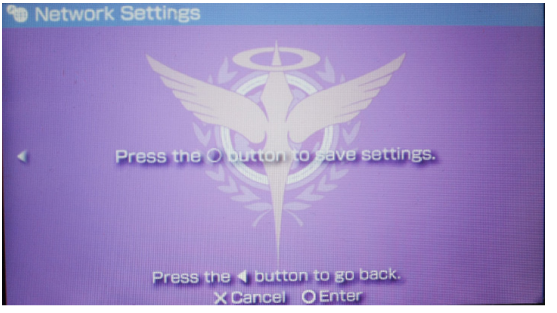
4. Select **AD Hoc Mode**.



5. Select the PSP channel that you want to connect to.



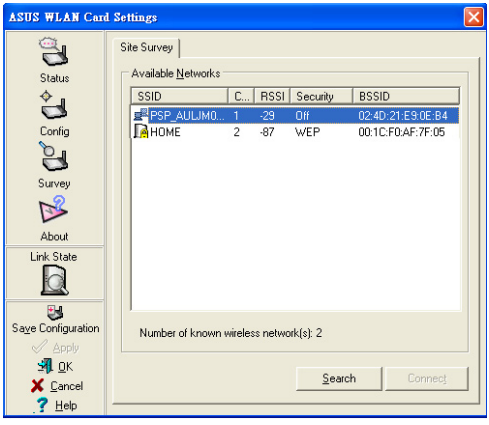
6. When done, select **O** to save the settings.



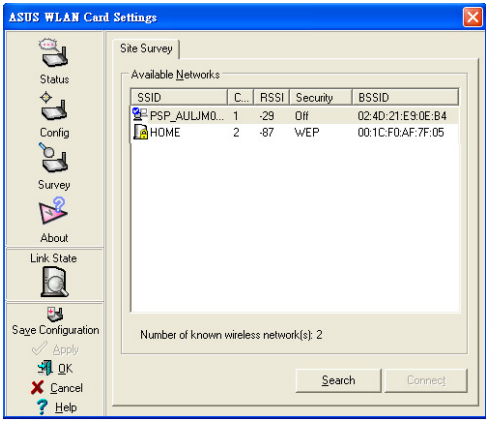
7. Select the game you want to play that is available for system-link then start the game connection. The PSP can provide you the SSID named **PSP_****** to connect.

   Click **ASUS WLAN Control Center** > **Survey** to search the available connection.

   Select **PSP_****** to connect.



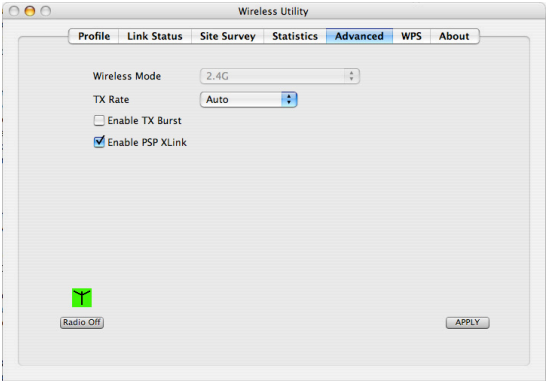
8. When done, click **Connect**.



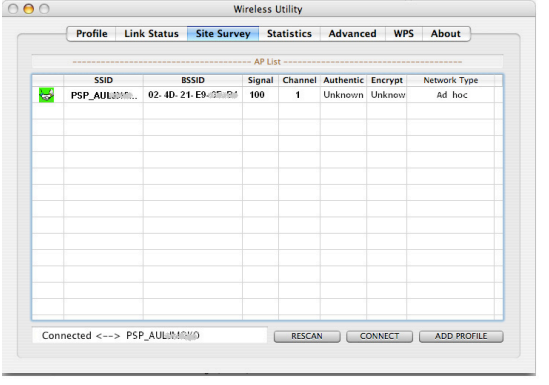
Setting up the XLink Mode under MAC OS

To set up the XLink Mode under MAC OS:

1. Select **USB Wireless Utility** > **Advanced** to enable PSP Xlink.



2. Click **USB Wireless Utility** > **Site Survey** to search the available connection.
3. Select **PSP_****** to connect.
4. When done, click **CONNECT**.



Troubleshooting

The following troubleshooting guides provide answers to some of the more common problems, which you may encounter while installing or using Network adapter products. If you encounter difficulties that are not mentioned in this section, please contact the Wireless LAN Technical Support.

Verify if the Network adapter is installed correctly.

When the Network adapter setup is complete, you can verify if the driver has been setup properly. Right click **My Computer**, select **Properties**, and click the **Device Manager** tab. Then double-click the **Network adapters** icon; you should see "**802.11g Network Adapter**" with an icon of an expansion adapter. There should not be a "!" or "?" (problem) or "x" (disabled) symbol over this icon.

There is a yellow exclamation mark or a yellow question mark in Device Manager in front of my Network adapter.

To resolve the problem, you should update/reinstall the Network adapter driver. In "Device Manager", right click **802.11g Network Adapter**, select **Properties**, and select **Driver** tab. Click on **Update Driver** button, then follow the "Update Device Driver Wizard" to complete the driver installation.

Cannot connect to any access points

Follow the procedure below to configure your Network adapter.

a. Verify that the "Network Type" is in "Infrastructure" mode.
b. Verify that the "SSID" of your Network adapter is set to the same "SSID" of an access point.
c. Verify that the "Encryption" type is the same as that of an access point. If you enabled "WEP" encryption, you must also set the same WEP Keys on both sides.

Cannot connect to a Station (Network adapter)

Follow the procedure below to configure your Network adapter.

a. Verify that the "Network Type" is in "Ad Hoc" mode.

b. Verify that the "SSID" of your Network adapter is set to the same "SSID" of the other station (or another Network adapter).

c. Verify that the "channel" of the Network adapter is "Auto" or set to the same "channel" of the other station (or another Network adapter).

d. Verify that the "Encryption" type is the same as the other station (or another Network adapter). If "WEP" encryption is enabled, you must set the same "WEP" Keys on both stations.

Bad link quality or bad signal strength

There are two possible reasons. First is radio interference, keep the environment around the Network adapter away from microwave ovens and large metal objects. Then try to reorient the Network adapter antenna. Second is the distance, decrease the distance between your Network adapter and the access point or station (or another Network adapter).

The TCP/IP protocol did not bind to the WLAN PC Adapter.

This will occur when the computer already has six TCP/IP bindings in Windows 98 or ten bindings in Windows Me. These limits are imposed by the Microsoft operating system.

Solution: If your computer already has the maximum number of TCP/IP bindings, remove one of the network adapters from the Network configuration before installing the Network adapter driver.

Appendix

FCC Warning Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Prohibition of Co-location

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter

Important:

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.End users must follow the specific operating instructions for satisfying RF exposure compliance. To maintain compliance with FCC RF exposure compliance requirements, please follow operation instruction as documented in this manual.

Declaration of Conformity for R&TTE directive 1999/5/EC

Essential requirements – Article 3

Protection requirements for health and safety – Article 3.1a

Testing for electric safety according to EN 60950-1 has been conducted. These are considered relevant and sufficient.

Protection requirements for electromagnetic compatibility – Article 3.1b

Testing for electromagnetic compatibility according to EN 301 489-1 and EN 301 489-17 has been conducted. These are considered relevant and sufficient.

Effective use of the radio spectrum – Article 3.2

Testing for radio test suites according to EN 300 328- 2 has been conducted. These are considered relevant and sufficient.

CE Mark Warning

This is a Class B product, in a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

IC Warning

The Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulation.

Cet appareil numerique de la class B erspecte toutes les exigences du Reglement sur le materiel brouilleur du Canada.

REACH

Complying with the REACH (Registration, Evaluation, Authorisation, and Restriction of Chemicals) regulatory framework, we published the chemical substances in our products at ASUS REACH website at http://green.asus.com/english/REACH.htm.

Industry Canada statement

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT

Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. To maintain compliance with IC RF exposure compliance requirements, please follow operation instruction as documented in this manual.